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|  | **Physics** | **شعار-القسم** |
| **Refraction of lights** |
| Worksheet-8- |

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| Name: Class: 8 /……........ | |
| Book pages: | |
|  | Date: 22 -5-2012 |
| 8.18.3 - 8.18.5- 8.18.6 | Core Standard number |
| 1. Know what is refraction of light .  2.Draw the path way of a ray of light when it passes from one medium to another.  3. Know what is critical angle and total internal reflection.  4- Know everyday applications of refraction. | Learning Objectives  Logo + text 2 |

**A**-Refraction of light

**1-a-Set up the following apparatus and complete the figure and label it:**

Glass

Air

**2- Define:**

* Refraction of light The bent of light when it travels form one medium to another
* Incident ray: . The ray of light that strikes the glass block
* Refracted ray: light that enters the glass block
* Normal: The line was drawn at right angle to the block glass surface
* Angle of incidence: angle between the incident ray and the normal
* Angle of refraction: the angle between the normal and the refracted ray

**3- Use the previous apparatus to do the following**

1. Set the apparatus in a way the incident ray travels from air to any transparent substance:

1-complete the following table: (transparent substance is glass)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Incident ray(o) |  |  |  |  |  |  |
| Refracted ray(o) |  |  |  |  |  |  |

2--Compare the angle of incidence to the angle of refraction

……………………………………………………………………………………………………….

3--Are all the incident rays refracted?

……………………………………………………………………………………………………………..

1. Set the apparatus in a way the incident ray travels from any transparent substance to air:
2. Complete the following table: ( transparent substance is glass)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Incident ray(o) |  |  |  |  |  |  |
| Refracted ray(o) |  |  |  |  |  |  |

1. Compare the angle of incidence to the angle of refraction

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1. Are all the incident rays refracted? If not in which condition?

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1. a- Do the same as above with different transparent substances. What do you notice?

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b- Define the critical angle

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c- What is total internal reflection?

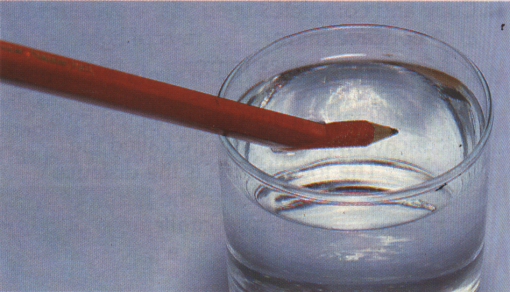
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4- Everyday application of refraction.

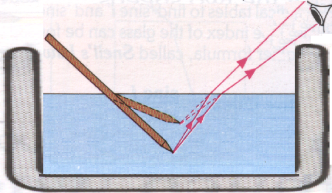
1. Real and apparent depth

Look at the picture below and answer the following questions:



a-Is the pencil appear to be broken or it really broken?

…………………………………………………………………………………………………………….

 b- How do you explain that?

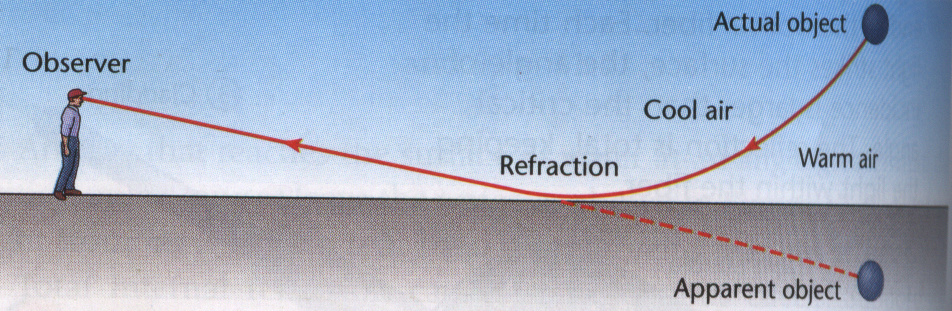
The rays of light from the part of pencil under the water are refracted away from the normal .

1. Mirage

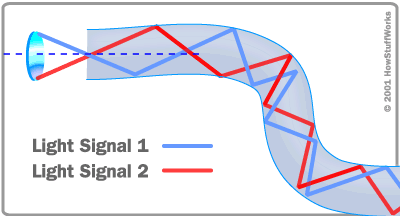
Sometimes, on a hot day, you might see what look like pools of water on a long stretch of road. This happens because there are hot layers of air near the hot road and cooler (denser) layers of air higher up.

When light meets a hot layer near the ground at an angle greater than the critical angle and total internal reflection takes place.

Complete the following image



3- fiber optics



The picture above shows how a fiber optic works